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THE PAN-PACIFIC ENTOMOLOGIST

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The Pan-Pacific Entomologist

Vol. XXXVII October, 1961 No. 4

AN INTERESTING ENCYRTID PARASITIC IN THE LARVAE OF CARPENTER-BEES

(Hymenoptera: Encyrtidae)

D. P. Annecke[1] and R. L. Doutt[2]

Through the kindness of Mr. J. S. Taylor, Division of Entomology, Port Elizabeth, the authors have been privileged to examine two series of specimens belonging to the chalcidoid family Encyrtidae which were reared from two larvae of *Xylocopa* species. Numerous specimens were obtained from each rearing, and Mr. Taylor suspected that he was dealing with a polyembryonic species. The specimens do not appear to differ generically from the descriptions of the Javanese species assigned to *Epaenasomyia* Girault by that author (Girault, 1919), or from the Indian species assigned to *Giraultella* Gahan & Fagan by Mahdihassan (1957). Unfortunately none of these species are fully described, so the generic placement of the present species is made as much on biological grounds (for the other species referred to above are also parasitic in species of *Xylocopa*) as on morphological. It should be pointed out that, in the opinion of the present authors, the generic relationships of the polyembryonic encyrtids are much in need of clarification.

Giraultella taylori Annecke and Doutt, new species

(Figures 1-8)

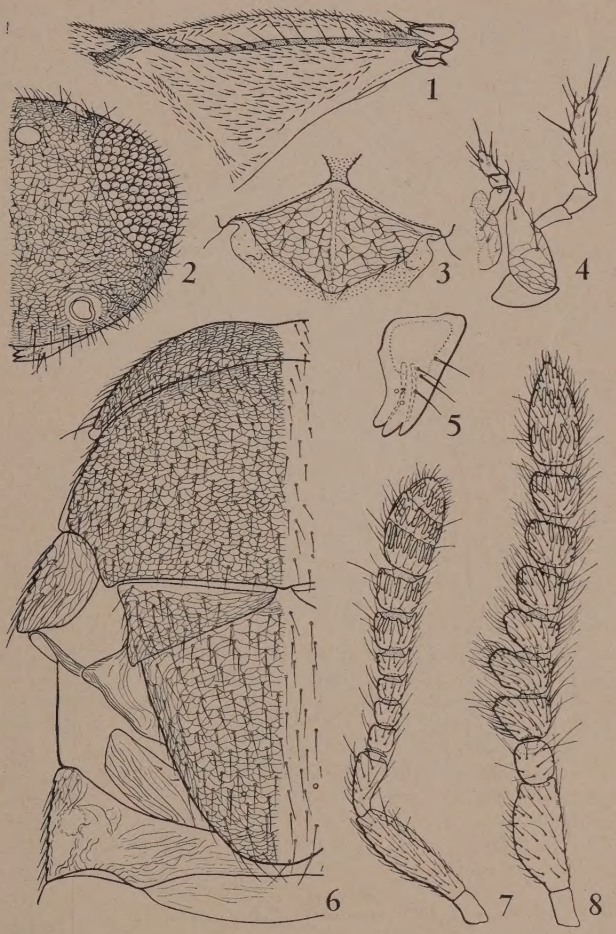
Length: 1.4–1.7 mm.

Color: Head and thorax of both sexes dark, with strong metallic green reflections on the face and head, particularly beneath and between the eyes, and less strong reflections on the thorax dorsally; lateral and ventral parts of the thorax fading to dark brown; abdomen brown, shiny, weakly metallic; legs with all coxae, the fore and middle tibiae externally, the hind femora entirely, the hind tibiae entirely except on about the internal apical third, and the last tarsal segments, brown or brownish black, the remainder whitish or brownish white except the first four segments of the fore and hind tarsi which are more dusky; mandibles brown apically, remaining mouthparts including palpi whitish; female antenna predominantly brown except the radicle and scape basally, and the pedicel apically, which are whitish; apical funicle segments and club becoming slightly lighter brown; all antennal segments more or less shiny; male antenna whitish with radicle, scape and pedicel dark shiny brown and first three or four flagellar segments brown to light brown; wings hyaline.

[1]Division of Entomology, Pretoria.

[2]Department of Biological Control, University of California, Albany, California.

Female.—Head, in dorsal view, almost semicircular in outline, the face evenly convex between the eyes; the latter widely separated, their smallest interval just behind the anterior ocellus being nearly half the greatest width of the head; eyes with abundant small setae; ocelli in about a right angled triangle, the lateral pair removed from the eye-margins and from the occipital margin by about the diameter of an ocellus or slightly less; in frontal view. The head is about one-fourth wider than high (Fig. 2), the cheeks about one-third shorter than the greatest eye-diameter, the antennae arising near the mouth in shallow but distinct impressions, their insertions separated from the mouth by a little more than the diameter of an insertion, and from each other by slightly less than the length of the scape; mandibles (Fig. 5) apically slender, distinctly tridentate, the middle tooth slightly the longest, with two internal canals; maxillary palpi with four and labial with three segments (Fig. 4). Antennae rather short, with radicle distinct, slender, nearly twice longer than wide; scape becoming distinctly thicker distally, at widest nearly one and one half times as wide as the pedicel and about twice as long as that segment, with a shallow ventral groove apically; pedicel strongly widened apically, about one and two-thirds times as long as its apical width; a minute ring-segment present between the pedicel and the first funicle segment (Fig. 7); the latter about as wide as long, about two-thirds as wide as the pedicel; next three funicle segments subequal in size, wider than long; fifth and sixth progressively larger, both a little wider than long, the fifth a little wider than the pedicel; club three-segmented, about as long as the last three funicle segments together, the first segment the largest, the third short, bluntly rounded apically, all club segments wider than long, in greatest width nearly twice that of the pedicel; all antennal segments moderately setose, the last five with longitudinal sensoriae numbering 5, 6, 9, 9, 5, but these numbers rather variable; scape and pedicel with distinct reticulations. Sculpture strong, finely punctate-reticulate; head except occiput clothed rather densely with short setae. *Thorax*, dorsally (Fig. 6), with mesoscutum wider than long, lacking parapsidal sutures, with axillae very nearly meeting medially, with surface of mesoscutum and scutellum not strongly convex, the latter sclerite overlapping the metanotum and the anterior part of the propodeum medially; metanotum visible only laterally; propodeum with laterally placed spiracles, without carinae; ventrally, prosternum (Fig. 3) with strong, entire median carina; sculpture of the thorax less strong than on the head, entirely punctate-reticulate (Fig. 6) except for the lateral arms of the metanotum which are obliquely and irregularly striate, and the propodeum dorsally which is faintly and irregularly transversely striate; laterally the propodeum is sculptured as the rest of the thorax, mesopleura strongly sculptured longitudinally with elongate, narrow, irregular reticulations; entire thorax clothed densely with short setae except metanotum, dorsal parts of propodeum, mesopleura and mesosternum. Legs with fore femora swollen, fore tibiae with slender spur set well back from apex; all coxae, femora and tibiae with reticulated sculpture, and more or less densely setose. Fore wing (Fig. 1) with submarginal vein long and slender, without a triangular expansion, set with 10-12 stout setae, with marginal vein puncti-



Explanation of Figures

Figs. 1-7. *Giraultella taylori* Annecke and Doutt, new species, female. 1. Basal part of fore wing (paratype T331-1); 2. Left side of head, frontal (paratype T331-8); 3. Prosternum (paratype T331-8); 4. Palpi (paratype T331-20); 5. Mandible (paratype T331-22); 6. Left side of thorax (paratype T331-1); 7. Antenna (paratype T331-1); 8. Male antenna (paratype T331-9). Figures 1-8 del. Mrs. M. J. Meyer.

form, with stigmal distinct, and radial process well developed and set with four placoid sensilla, with postmarginal about as long as stigmal and set with stout setae; oblique hairless streak distinct, not interrupted; blade of wing beyond the streak uniformly and densely setose, basad of the streak the setae are longer and more sparse; costal cell setose along the cephalic margin, bare along the submarginal vein; marginal fringe of cilia short; hind wing less than three times longer than wide, with basal part of the venation strongly curved. *Gaster* broadly attached to the thorax, the mesophragma projecting slightly into the abdomen, its apex slightly emarginate; each tergum with a transverse row of setae, these becoming longer toward the tip of the abdomen; venter of gaster densely setose in a broad band from base to apex; ovipositor diminutive, only slightly more than one-third as long as the gaster in slide-mounted specimens, not exserted apically; gonostyli distinct, slender, less than one-half as long as the ovipositor; gastral terga distinctly reticulate, the reticulations regular medially and larger than on the thorax, becoming smaller and more irregular laterally.

Male.—Differs principally from the female in the antennae and genitalia. Antenna as in Fig. 8, the scape short, the pedicel short and only a little longer than its apical width; ring-segment extremely small; first three or four funicle segments strongly produced dorsally, particularly the second; club with no trace of a division, with longitudinal sensoriae arranged in two transverse rows; last three funicle segments bearing longitudinal sensoriae on the apical half of each segment; flagellum strongly setose, the scape and funicle with a few setae and with distinct, reticulated sculpture. Male genitalia less than one-third as long as the gaster.

Described from 6 females (holotype and paratypes) and 5 males (allotype and paratypes) mounted on card-points, and from 9 females and 11 males (paratypes) mounted on slides in Canada Balsam after treatment in caustic soda, and after dissection. This material was collected at PORT ELIZABETH, C. P., UNION OF SOUTH AFRICA, on November 9, 1960, by Mr. J. S. Taylor, for whom the species is named, and it forms part of a rearing of more than 70 specimens from a single larva of *Xylocopa (Mesotrichia) flavorufa* Degeer. The remainder of these specimens which are not designated as types are not fully formed adults. Types and paratypes to be deposited in the National Collection of Insects, Division of Entomology, Pretoria; paratypes to be deposited in the collections of the authors.

A second lot of specimens of both sexes was reared by Mr. Taylor from a larvae of *Xylocopa (Mesotrichia) divisa* Klug at Port Elizabeth, C. P., on February 27, 1961; this material, consisting of about 47 ♀♀ and 46 ♂♂, presents one or two small differences from the series described above especially in the dis-

position and number of the sensoriae on the funicle segments of the female, and until more material comes to hand from further rearings, it is not possible to be sure about their specific identity with *G. taylori* new species.

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THE PRESUMED LARVA OF HIMALOPSYCHE PHRYGANEA (ROSS)

(Trichoptera: Rhyacophilidae)

OLIVER S. FLINT, JR.[1]
Smithsonian Institution, Washington, D.C.

The subfamily Rhyacophilinae of the Rhyacophilidae contains two distinct genera, *Rhyacophila* and *Himalopsyche*. The validity of a third described genus, *Philocrena*, known only from larvae collected in the Caucasus, is difficult to assess in the absence of adults. The large genus *Rhyacophila* contains at least 250 species, of which 90 are found in North America. The genus *Himalopsyche* contains only 24 species with but one, *phryganea* (Ross), known to occur in the Nearctic Region. A complete taxonomic, biogeographic and phylogenetic treatment of the subfamily may be found in Ross (1956).

The larvae of the many species of *Rhyacophila* that have been described are a rather heterogeneous group. Because of the rather inaccessible central Asian range of most species of *Himalopsyche*, very few larvae in this genus are known. Lepneva (1945) described the larvae of two Asian species, *gigantea* (Martynov) and species "larva hoplura." Tsuda (1948) described the larva of *japonica* (Martynov) which is apparently the same as that described by Iwata (1928) under the name of *R. formosae* Iwata (see Ulmer 1957:127).

During some recent work on *Rhyacophila* larvae, a singular larva from Oregon was found in the Cornell collection. The length of this specimen, 32 mm., immediately eliminated all known Nearctic rhyacophiline species except *phryganea*. There are also a number of important similarities between this larve and those

[1] Formerly at Cornell University, Ithaca, N.Y.

of *gigantea* and species "hoplura"—a large size; shape, structure setal pattern, and coloration of the head; structure of the labrum, mandibles, and maxillary palpi; shape of the pronotum; structure and setal pattern of the legs; and structure of the anal prolegs. The larva of *H. japonica* is also in agreement insofar as the structures are figured. The main difference is in the structure of the gills. In *gigantea*, species "hoplura" and *japonica*, a long conical projection is borne laterally on each segment from the mesothorax to the eighth abdominal segment; the shorter gill filaments are borne dorsally on these projections. In *phryganea* there is no trace of the conical projections. This character, however, is probably of no generic importance, as the larvae of the various species of *Rhyacophila* may either have no gills, a single pair of gills per segment, or a branching cluster of gills on each segment. For these reasons the larva is considered to be that of *Himalopsyche*, and since *phryganea* is known from Oregon, it is probably this species.

It is difficult at this time to give any distinctive morphological characters that will separate the larvae of the genus *Himalopsyche* from those of *Rhyacophila*. However, in the Nearctic Region the two genera may be separated by the large size and great number of gill filaments in each cluster in the genus *Himalopsyche*.

Larva: Length 32 mm., width 6 mm. *Head:* Red-brown dorsally with infuscations anteriorly and darker muscle scars posteriorly, paler ventrally. Dorsal surface rugose, especially anteriorly; setae as in figure 1. Mandibles and labrum as in figures 2–4; maxillo-labium inrolled and contorted, but maxillary palpi short, with second segment subequal to the first. *Thorax:* Pronotum and legs red-brown with blackish markings. All legs nearly identical in shape and setae pattern (fig 6). Meso- and metanota each with a large linear area of gill filaments antero-laterally; each area with about 100 filaments arising independently from the surface; a single, club-shaped filament arising laterally at the base of the middle and hind legs. The meso- and metanota each with a pair of long setae posteriorly, each with several shorter setae near its base; a shorter pair of setae anteriorly on each segment. *Abdomen:* Segments 1–8 each with a slightly raised lateral area bearing 50–100 individual gill filaments. Each segment bearing two pairs of long setae postero-dorsally and one shorter pair anteriorly; ventrally having one pair of long setae mesally (lacking on first segment?) and another pair

Explanation of Figures

Fig. 1, head and pronotum, dorsal; fig. 2, left mandible; fig. 3. right mandible; fig. 4, labrum dorsal; fig. 5, anal proleg, lateral; fig. 6, foreleg, anterior surface.

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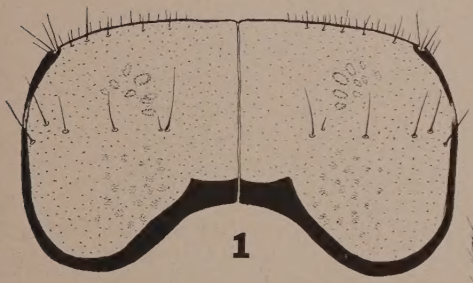

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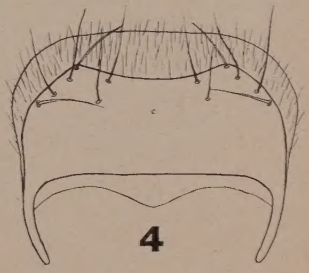

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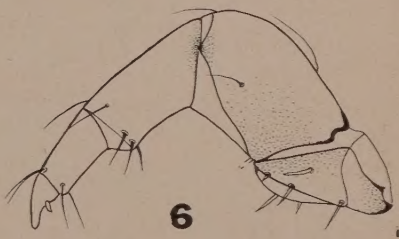

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of shorter setae laterally. (Many abdominal setae broken off.) Segments 3–7 each with a small, oval, scabrous patch ventro-mesally. Ninth tergite badly deformed in this specimen. Ninth segment ventrally with three pairs of setae, the central pair shortest, lateral pair longest. Anal sclerites and claws red-brown, marked with black (fig. 5).

Material examined.—Oregon: Klamath Falls, Feb. 15, 1941 (Betten collection, Cornell University).

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TWO PARASITES OF HYLEPHILA PHYLEUS DRURY IN ARIZONA

(Lepidoptera: Hesperiidae)

The skipper, *Hylephila phyleus* Drury, is a well-known pest of bermudagrass in California. An infestation of these larvae was observed on a Tiffine bermudagrass green at Randolph Park Golf Course, Tucson, Arizona, on September 28, 1960. A braconid wasp, *Apanteles hesperidivorus* Viereck, (determined by C. F. W. Muesebeck) was observed ovipositing in a larva. Several adult *A. hesperidivorus* were reared from other larvae. Tachinid flies, *Plagioprospherysa parvipalpis* (Van der Wulp) determined by H. J. Reinhard) were very abundant. Several skipper larvae were collected with single white flattened eggs, which developed into flies. This species is represented in the University of Arizona Insect Collection by specimens collected in the central and southeastern parts of Arizona.—George D. Butler, Jr., *University of Arizona, Tucson.*

TAXONOMIC AND BIOLOGICAL OBSERVATIONS ON PSEUDEXENTERA HABROSANA (HEINRICH)

(Lepidoptera: Tortricidae)

JERRY A. POWELL
University of California, Berkeley

This Olethreutid moth has remained unrecognized since its original description, although it is to be found as a rather common associate of live oak in California, flying primarily in January, February and March. It has been undetermined in collections or confused with *P. oregonana* (Walsingham).

PSEUDEXENTERA HABROSANA (Heinrich), new combination
Exentera habrosama Heinrich, 1923, Bull. U.S. Nat'l. Mus., 123:178.

Heinrich (1940) has shown that the type of *Exentera* is a synonym of a species of *Eucosma,* and accordingly he proposed the name *Pseudexentera* for species formerly assigned to *Exentera* which are congeneric with *cressoniana* (Clemens). The latter was thought by Heinrich to be a synonym of *improbana* (Walker), but subsequently McDunnough (1959) presented evidence that Walker's name probably is not congeneric with *cressoniana.* He raised the latter from synonymy to accomodate the common eastern oak-feeding species.

P. oregonana (Walsingham) was described from northern Oregon in 1879, and the name subsequently has been identified with a widespread, poplar-feeding species in Canada. Although the male genitalic characters used are very similar between the species, McDunnough (1940) showed that the female genitalia are of taxonomic value in the group and can be used to separate *oregonana* and *cressoniana.*

P. habrosana (Heinrich) was described from three males, two from San Diego and one from San Francisco, California. The original description does not clearly point out some of the distinctive features; and, although Heinrich indicated some variation in wing pattern, *P. habrosana* is variable to a much greater extent. The species may characterized as follows.

A narrow-winged species having grey forewings which are marked by a distinct, mid-dorsal, dark, vertical bar and have a bronzy mottling in the terminal area.

Male.—Length of forewing 8.7 to 10.5 mm. *Head:* labial palpus elongate, second segment longer than vertical eye diameter, curving upward, broadly expanded by spreading scales into a rounded tuft which half obscures the

porrect, smooth-scaled third segment; second segment grey exteriorly, at times reflecting purplish, the scales narrowly tipped with white, paler interiorly; third segment dark grey. Antenna dark grey, dorsal scaling spreading, giving a dentate appearance; scape white below. Scale tufts of crown strongly directed inward, of vertex forward, scales elongate, grey, their bifid tips narrowly whitish. *Thorax:* scaling appressed, greyish, scales white-tipped, more broadly so posteriorly; metanotum scaled, lateral tufts not extending over scutellum. Underside shining white; pro- and mesothoracic legs greyish. *Forewing:* elongate, length about 3.7 times width, expanding outwardly. Costa nearly straight; apex acute; termen strongly angled back, slightly concave below middle, broadly curved to dorsum. Ground color grey; a black, vertical bar at inner one-third of dorsum. its inner margin usually indistinct, with a straight or concave outer margin, or the whole mark curving outwards towards middle of wing; a bronzy suffusion present, usually as a few scales in the dorsal bar and an indistinct shading in apical area; outer half of wing suffused with whitish, at times forming a distinct pattern, leaving bronzy or blackish markings as follows: a broad band from costa beyond middle to tornus, sinuate on both inner and outer margins; apical area from outer one-fourth of costa to mid-termen, with a rounded intrusion of whitish below middle and interrupted by the outer two of four pairs of white costal dashes. Fring grey, darker in apical area and at tornus, the scales distinctly tipped with white. Underside dark grey, reflecting purplish, costa with four distinct or indistinct white areas corresponding to costal dash marks of upperside. *Hindwing:* one-third broader than forewing; costa slightly concave in outer half; apex acute; termen almost straight; dorsum slightly concave. Pale brownish or greyish, darker towards apical area. Fringe broad, white with a basal row of short, pale brownish scales. Underside pale brownish to whitish, at times streaked with white. Fringe white. *Abdomen:* whitish to pale greyish, each segment broadly banded with shining whitish posteriorly. Genital tuft short, not spreading; genitalia as figured by Heinrich (1923; fig. 314) (four preparations examined).

Female.—Length of forewing 7.4 to 9.5 mm. Essentially as described for male in external features. Variation as great, although the distinctly marked form apparently less frequent in female. Genital tuft reduced, papillae anales exposed; genitalia as in fig. 1 (drawn from neallotype, Mill Valley, II-7-26, JAP Prep. No. 594, five preparations examined); small plate of antrum somewhat variable in development; corpus bursae covered with minute spiculae, densest in central portion (not indicated in figure 1).

The genitalia of both sexes are very similar to *P. oregonana* (Walsingham) as figured by Heinrich (1923) and McDunnough (1940). From the description it does not seem likely that Walsingham's species is conspecific with the *habrosana* material examined, since Walsingham made no mention of the dark dorsal bar which seems to distinguish *habrosana*. Additional material from Oregon and northern California may reveal that the two are races of the same species. However, if *oregonana* has been correctly identified

in Canada, the two have different foodplants, *habrosana*, being an oak-feeder.

Explanation of Figures

Figs. 1–3; *Pseudexentera habrosana* (Heinrich). 1; female genitalia, ventral aspect. 2; prothoracic shields of two larvae showing variation in marking; dotted line indicates approximate extent of yellow-brown coloration. 3; pupal head, lateral aspect, showing frontal projection.

The remarkable distinctly marked form described above at times appears to be represented in local colonies (*e.g.*, Alpine Lake), but frequently it is taken along with examples of the diffuse-marked forms (*e.g.*, The Geysers). The two at first appear to be distinct species, but I have been unable to find any consistent superficial or genitalic difference between them. Heinrich described the dorsal band as "brownish ochreous, outwardly curved", but there is a complete gradation from a vertical outer margin to a strong outward curve and from black to dark bronzy. The bronzy, curving bar is characteristic of the distinctly marked form.

California material examined.—Nevada Co.: Nevada City, 1 ♂ VI-'53 (E. C. Zimmerman). Placer Co.: Colfax, 1 ♀ "April" (A. H. Vachell). Sonoma Co.: The Geysers, 1 ♂ III-19-39, 3 ♂ II-4-40 (E. C. Johnston); Spring Mtn., 1 ♂ II-26-61 (J. Powell); Kenwood, 1 ♂ II-14-31 (E. C. Johnston); Petaluma, 1 ♀ II-17-39 (E. C. Johnston). Napa Co.: Spring Mt., 3 ♂ I-14-40, 3 ♂ I-26-40, 2 ♂ II-1-40, 1 ♂ III-1-40, 1 ♀ IV-2-50 (E. C. Johnston). Marin Co.: Tomales Bay St. Park, 4 ♂ I-21-59 (J. Powell); Inverness, 1 ♂ I-28-40 (E. C. Johnston), 1 ♂ II-17-61 (J. Powell); Phoenix Lake, 1 ♀ III-6-26, 1 ♀ III-19-27 (H. H. Keifer); Alpine Lake, 3 ♂, 1 ♀ IV-1-59 (J. M. Burns); Mill Valley, 2 ♂ I-21-25 (H. H. Keifer), 8 ♂, 6 ♀ II-7 to II-28-26 (E. P. & M. C. Van Duzee), 1 ♂ III-5-59, light trap (H. B. Leech). Contra Costa Co.: Orinda, 1 ♂, 4 ♀ II-5-61, 15 watt blacklight trap (W. W. Allen); Bollinger Cnyn. Rd., 1 ♂ II-14-60 (J. Powell). Alameda Co.: Berkeley, 1 ♀ II-29-60, at light (J. Powell); Strawberry Cnyn., Berkeley Hills, 1 ♀ III-4-59 (Chemsak & Powell), 1 ♂ II-21-60, 1 ♂, 2 ♀ IV-16-60, r. f. *Quercus agrifolia* (dead adults in pupal shells III-'61) (JAP-60D7), 1 ♂ I-27-61, on lvs. *Q. agrifolia* (J. Powell); Mills College, Oakland, 2 ♀ II-9-08 (A. F. Braun). San Francisco Co.: San Francisco, 2 ♂ II-8-26, 1 ♂ r.f. *Q. agrifolia*. IX-4-27 (H. H. Keifer), 1 ♂ II-17-60, "flying nr. *Q. agrifolia*," 1 ♂ II-18-60 (P. H. Arnaud, Jr.), Golden Gate Park, 3 ♀ III-18-60, *Q. agrifolia* assoc. (J. Powell). Santa Clara Co.: Stanford Univ., 1 ♀ III-1-48, "collected on oak" (J. W. Tilden). Monterey Co.: Carmel, 2 ♂, 2 ♀ "IV" (A. H. Vachell), 1 ♂ II-9-38 (L. S. Slevin); Hasting's Reservation nr. Jamesburg, 1 ♂ II-5-53 (Linsdale), 1 ♀ III-7-54, 1 ♂ III-9-54, at light (B. S. Davis). Los Angeles Co.: Tanbark Flat, 2 ♂ III-30-57 (J. Powell). San Diego Co.: Oak Grove, 1 ♂, 1 ♀ IV-4-49 (P. D. Hurd); San Diego, 1 ♂ III-18-12 (W. S. Wright), Paratype.

Biology.—It seems likely that the life history of *P. habrosana* is similar to that described for eastern members of the genus by Freeman (1942) and McDunnough (1959). The moths of these species fly in early spring, just before the leaf buds of their respective hosts open, at which time the females oviposit on the terminal twigs. The larvae feed on new spring growth, then enter the soil, where they spin oval, brown cocoons and aestivate. Pupation occurs in the fall, and the pupae hibernate. In the San Fran-

cisco Bay area. *P. habrosana* has been collected on a number of occasions in association with *Quercus agrifolia*, and larvae were taken on this plant in April 1960. *Q. agrifolia*, an evergreen species, begins to send out new growth during March in the bay area, at about the end of the flight period of *P. habrosana* in this region.

Full grown larvae were taken only in small numbers in large collections of the spring caterpillar community on the trees, and no special shelter construction or feeding habits were noted. The *P. habrosana* larvae are pale tan and very sluggish in behavior. Aestivation commenced soon, the larvae constructing tightly-spun, flat cocoons between bits of leaf material and the paper toweling provided in the bottom of the container. The cocoons were kept under laboratory conditions; and when examined in early August, the larvae had not pupated, but did so later. The adults failed to emerge during early spring 1961, presumably due to dessication. (Confirmation of the identification was made from the genitalia of a fully developed adult dissected from the pupal shell.)

McDunnough (1959) states that adults of *P. kalmiana* McD. are fully formed in the fall but that attempts to rear them prove futile because the moths frequently dry up in the pupal shell during winter. This probably accounts both for the fall emergence date of the San Francisco rearing record given above and for the paucity of rearing records in general.

The larva of *P. habrosana* is distinct from the five species of *Pseudexentera* described by MacKay (1959) in having fewer crotchets, and differs from each in other details. In her key it runs to *Pseudexentera* sp. (? *oregonana*) due to the stout spinneret. The following diagnosis of the larva is based on four specimens collected April 16, 1960 in Strawberry Canyon on *Quercus agrifolia* (JAP-60D7).

Ultimate instar.—As characterized for *Pseudexentera* by MacKay (1959) except as follows:

Length about 13.5–14.0 mm. (specimens distended in KAAD). Head, average width at vertex 1.21 mm., average greatest length (as seen from above) 1.01 mm.; outline in dorsal view not broadly rounded; yellow-brown, at times quite pale, somewhat darker posteriorly and at sides; ocellar area black. Spinneret about 4.5 to 5 times longer than broad. Body pale, integument including pinaculi without pigment; no spinules evident under 100x magnification. Prothoracic shield pale yellow-brown, distinctly and rather consistently marked with dark brown sclerotization as in fig. 2; spiracle small (about equal to distance between setae L_2 and L_1). Setal

arrangements essentially as figured by MacKay for other species in the genus; on prothorax, SD_1 usually closer to SD_2 than to XD_2 but nearer to latter in one case; L_1 distinctly to slightly closer to L_2 than to L_3 and slightly below a line connecting the latter two; on abdomen, SD_1 of segment 8 anterior or slightly anteroventral of spiracle and about two times diameter of latter from it; SV group on segments 1, 2, 7, 8, 9 usually 3:3:2:2:2 (3:3:1:2:1 on one side of one specimen). Anal shield rounded posteriorly; setae L_1 further apart than D_1; D_2 less than one-third the length of L_1. Anal comb moderately well developed, usually with four teeth (5 + 2 small, anterobasal teeth on one specimen). Tarsi brown. Crotchets biordinal or partially triordinal; usually 31 (range 29–34) on abdominal proleg; about 22 (range 20–24) on anal proleg.

The pupa is provided with a pointed frontal projection (fig. 3), which probably aids in emergence from the cocoon and movement in the soil. It seems unlikely that it is unique to *P. habrosana*, and it may be characteristic of all species of *Pseudexentera*. The first six abdominal segments are armed with two dorsal rows of short, stout spines; the eighth and ninth segments bear about six heavy triangular spurs; and the cremaster is simple, consisting primarily of two lateral, triangular projections, a type which seems to be typical of Tortricid pupae which anchor in the soil.

Acknowledgment is made for assistance by Dr. J. F. Gates Clarke, U. S. National Museum, who compared specimens with the type of *P. habrosana*. In addition to the National Museum and California Insect Survey, the material examined is deposited in the following collections, and I am indebted to the individuals whose assistance enabled study of the specimens in their care: Dr. C. D. MacNeill, California Academy of Sciences, San Francisco; Dr. T. N. Freeman, Canadian National Collection, Ottawa; Dr. J. M. Linsdale, Hasting's Natural History Reservation, University of California, Carmel Valley; and Dr. J. W. Tilden, San Jose, California.

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A NEW SPECIES OF TETRALONIA FROM THE DESERTS OF CALIFORNIA AND NEVADA

(Hymenoptera: Apoidea)

P. H. Timberlake

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The following species is described at this time to provide a name for a bee that figures prominently in the pollination of *Oenothera*, and on which Drs. Linsley and MacSwain wish to publish their observations.

Tetralonia venusta Timberlake, new species

This is a remarkably distinct and isolated species. It differs from usual species in the minutely and densely punctured head and thorax, densely clothed with pale pubescence, more or less fulvous dorsally, in the fine and unusually close-set scopal hair of hind tibiae and basitarsi, in the light-colored, short, thin maxillary palpi and in the cuneate pygidium, with a broad low median ridge. The female is also remarkable for the wide variation in the color pattern of the abdomen. The male is distinctive in having the sixth ventral segment well rounded at apex, with a strong, oblique crista on each side, the subgenital plate with a deep, rounded median notch, and tergite seven with a narrowly cuneate pygidiform area.

Female.—Black, the mandibles generally with a fulvous mark before the apex, flagellum of antennae somewhat brownish beneath, tegulae pale ferruginous, tibial spurs brownish testaceous and small joints of tarsi more or less brown. Wings grayish dusky, the nervures fuscous. Pubescence of head and thorax very dense and fine, concealing the surface of mesonotum, a little longer and less dense on cheeks and underparts of thorax, moderately dense across the middle of face, usually more or less bright fulvous but

varying to pale ochraceous, and becoming white or whitish on head, propodeum and underparts of thorax. Hair of labrum dense and ochraceous to pale fulvous. Pubescence of abdomen mostly short and appressed, but long on basal segment and lateral margins of the others, very short, erect and velvety plumose broadly across the base of tergites 3 and 4, rather longer and very dense on disk of tergite 5, thin enough on tergite 1 and across the middle of tergites 2 and 3 to expose the surface and dense and plumose on apical depression of tergites 2 to 4. In color the pubescence of abdomen takes three definite phases: (1), almost entirely white, sometimes with a blackish tinge across the base of tergite 4 and becoming brown on disk of tergite 5 and on flanks of tergite 6; (2), disk of tergites 2 to 5 black, leaving a moderately wide white band on the apical depression of tergites 2 to 4 (narrower on tergite 2) and becoming brownish fulvous very narrowly at apex of tergite 5; (3), tergites 2 to 6 almost entirely black, with a small black mark on each side of the disk of tergite 1, and with a very short whitish marginal fringe across apex of tergites 2 and 3 and one less distinct on tergite 4, these more easily seen in lateral view. Venter of abdomen with long dense fringes generally whitish across apex of segments 2 to 5. Hair of legs white, with the very dense hair on outer side of front and middle tibiae appearing whitish or pale ochraceous in some lights, but actually pale brownish, or sometimes more or less infuscated, and the hair on the inner side of middle basitarsi fulvous brown; scopal hair of hind tibiae and basitarsi unusually fine and dense, more or less grayish or pale brownish, sometimes becoming dark fulvous on inner side of basitarsi, although usually more or less completely fuscous on inner side of both tibiae and basitarsi.

Head broader than long, the inner orbits parallel. Mandibles stout, with apex rather narrow and notched, but usually worn to become broad and rounded at apex. Proboscis moderately long, the galeae with extremely sparse and minute hairs, the maxillary palpi short, more or less pale, with the three apical joints small, two of them equaling the third joint. Vertex not appreciably impressed on each side of the ocelli. Pygidium rather broad at base and cuneately narrowed to the almost acute apex, the disk with a broad median ridge and with a longitudinal and lateral curvature. Clypeus finely rugose, with the ridges mostly longitudinal. Head otherwise and the thorax moderately shining, with the punctures on the face and mesonotum extremely fine and dense. Base of propodeum with punctures dense but coarser than elsewhere, and more hairy than usual. Abdomen dullish and with microscopic punctures. Length, about 11–13 mm.; anterior wing, 8–8.5 mm.

Male.—Black, the labrum and clypeus white, with the clypeal mark separated from anterior end of eyes by a broad dark interval and slightly notched on each side just above the middle by the dark foveal impression in the suture. Antennae black. Tibial spurs brownish testaceus and apical joint of tarsi slightly brownish. Pubescence much as in female, but generally pale ochraceous to pale fulvous on the mesonotum. Hair of abdomen white, thin enough on the disk of the tergites to expose the dark surface,

the bands at apex of tergites 2 to 6 moderately dense but becoming denser on the apical segments, and the white hair that flanks the pygidial plate on tergite 7 very dense. Hair of legs white, but fulvous on inner side of middle and hind basitarsi; that on outer side of middle tibiae short and dense, but that on hind tibiae and basitarsi long and loose, although partly appressed down the middle of the outer side of the tibiae.

Head only a little broader than long, the clypeus moderately convex and prominent. Antennae moderately long, reaching apex of tergite 1 of abdomen, with the flagellum slender and almost filiform; joint 1 of flagellum about two-thirds as long as joint 3. Mandibles tapering and subacute at apex. Sculpture very similar to that of female except that the clypeus is much smoother. Tergite 7 with a definite pygidiform plate, which is about twice as long as wide and narrowed to rather broadly obtuse apex. Ventral segment 6 rounded at apex, and armed on the lateral borders with a rather high, sublaminate crista, gradually lowered at each end but otherwise even and with a vertical wall on the exterior side. These cristae nearly as high as similar plates in the male of *T. actuosa*, but not abrupt at the ends and convergent posteriorly instead of parallel. Subgenital plate with a deep rounded notch at middle of apex and the broad rounded lobe on each side with a thin fringe of rather short hair. Ventral segment 7 curiously structured, but more in the fashion of *T. speciosa* and *T. argyrophila* than in other species; the submedian plate on each side extending straight backward nearly vertically, then bent abruptly outward and expanded into an elongate oval disk, which is obliquely inclined, about three times longer than wide, and densely covered on its outer face with extremely short and fine pubescence; lateral plates with a short blunt apical lobe and a broad quadrate exterior lobe, which lies in nearly the same plane as the oval disk of the submedian plates. Genitalia ordinary, with the parameral lobes (gonostyli) very slender to apex. Length, 10–11 mm.; anterior wing, 7–8 mm.

Holotype female (with pubescence of abdomen mostly as in phase one, but with some black hair on tergite four and more on tergite five) and allotype, 9.6 MILES NORTH OF SHOSHONE, INYO COUNTY, CALIFORNIA, collecting pollen from *Oenothera clavaeformis* var. *aurantiaca*, May 3, 1960 (J. W. MacSwain). Paratypes as follows: 14 females, 3 males, taken with the types (MacSwain); 79 females, 11 males, 5.5 miles north of Shoshone, females taking pollen from same flower, May 3 to 5, 1960 (E. G. Linsley and MacSwain); 1 male, three miles north of Big Pine, Inyo County, on *O. clavaeformis* var. *cruciformis*, May 27, 1959 (P. H. Raven); 1 male, Yermo, San Bernardino County, April 25, 1953 (R. O. Schuster); 1 female, Hopkins Well, west of Blythe, Riverside County, April 28, 1949 (L. W. Quate); 29 females, 18.5 miles west of Blythe (Hopkins Well area), females

taking pollen from *O. clavaeformis* var. *aurantiaca* (except one at light at nightfall), April 14 to 18, 1958 (Linsley, MacSwain, P. D. Hurd, Jr., and Timberlake); 2 females, same locality, on *Larrea divaricata*, April 14, and 16, 1958 (Hurd). NEVADA: 13 females, 14 miles south and 10 miles west of Fallon, Churchill County, taking pollen from *O. clavaeformis* var. *integrior*, June 5, 10 and 11, 1959; 1 female, 17 miles west of Wadsworth, Washoe County, on *O. clavaeformis* var. *cruciformis*, May 29, 1959 (Raven); 2 females, 1 male, 2.8 miles west of Valmy, Humboldt County, gathering pollen from *O. clavaeformis* var. *integrior*, June 14, 1960 (MacSwain).

Tetralonia venusta carinata Timberlake, new subspecies

The male of *carinata* is similar to *venusta*, but hair of abdomen mostly black and the antennae a little longer and more compressed. As the seventh and eighth ventral segments and genitalia seem exactly as in *venusta* the status of *carinata* cannot be more than subspecific. The unknown female of *carinata* presumably will be found to have the abdomen black and unbanded.

Male.—Similar to *venusta*, but labrum and clypeus pale yellow with a similar spot at base of mandibles in two out of three specimens. Antennae longer, reaching nearly to apex of tergite 2 of abdomen, the flagellum somewhat compressed instead of almost filiform. Pygidial plate of tergite 7 narower, more nearly acute at apex, with the median carina weak, and the disk sometimes reddened. Lateral cristae of ventral segment 6 considerably less elevated than in *venusta*, but seventh and eighth ventral segments and genitalia apparently the same. Pubescence of head and thorax the same as in *venusta*, but that of the abdomen shaggier, erect and flaring, although short except on the basal segment and on lateral margins of other segments: hair of tergites 1 and 2 pale ochraceous or whitish, that on the disk of tergites 1 and 2 pale ochraceous or whitish, that on the disk of tergites 3 to 6 black, but with a very broadly interrupted, thin and narrow whitish band on the apical depressions, merging laterally into the light hair on each side of the same segments. Length, 11–11.5 mm.; anterior wing, 7–8 mm.

Holotype male from the PINNACLES NATIONAL MONUMENT, SAN BENITO COUNTY, CALIFORNIA, May 19, 1941 (J. W. MacSwain); one male (paratype), Idria, San Benito County, June 15, 1955 (M. Wasbauer); and one male (paratype), Dardanelles, Tuolumne County, June 26, 1951 (MacSwain).

Types of *venusta* and *carinata* in collection of the Citrus Experiment Station, and paratypes in collection of the California Insect Survey, University of California, Berkeley.

SYNONYMICAL NOTES ON THE LEPISMATIDAE (THYSANURA)

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The following notes are intended to elucidate some synonymical problems in the Lepismatidae and make it possible for correct combinations to be used for work now in progress.

HETEROLEPISMA Escherich

Isolepisma Escherich, 1905, Zoologica (Stuttgart) 43:61.
Heterolepisma Escherich, 1905, Zoologica (Stuttgart) 43:63.
Heterolepisma Stach, 1933, Prace Muz. zool. 9:341.
Notolepisma Tillyard, 1924, New Zealand J. Sc. Techn. 7:241. *New synonymy.*

The International Code of Zoological Nomenclature adopted by the fifteenth International Congress of Zoology, London, 1958, determines that the relative priority of different names for a single taxon published simultaneously is determined by the action of the first reviser. In the present case, Stach (1933) unequivocally selected *Heterolepisma* as the name to be used for the genus composed of Escherich's now syonymized *Heterolepisma* and *Isolepisma*, stating "so wähle ich den ersten Namen als einen gemeinsamen Gattungsnamen für alle diese Arten." This selection of *Heterolepisma* as the correct name for the genus must be accepted.

The description of *Notolepisma* Tillyard is very short and, as now has become apparent, not completely correct; up to the present moment it had not been possible to place this genus in the system of the Lepismatidae. Its situation as a supposedly endemic New Zealand genus made it especially desirable to obtain additional data and settle its taxonomic status.

Thanks to the kindness of Miss Margaret Williams, of the Zoology Department, University of Canterbury, Christchurch, New Zealand, I have been able to examine specimens of a lepismatid collected at the type locality of *Notolepisma zelandica*, *viz.* York Bay, Wellington Harbour, North Island, as well as additional specimens from the South Island.

The York Bay specimens agree closely enough with Tillyard's description to make it certain that the same species is involved.[2] Examination of the material leaves no doubt that *Notolepisma*

[1] Work carried out while on leave of absence from the Department of Zoology, University of Buenos Aires, under a John Simon Guggenheim Memorial Foundation fellowship.

[2] Miss Williams informs me that the type of *Notolepisma zelandica* is very poorly preserved, but that it does bear out the following conclusions.

zelandica Tillyard is a species of the genus *Heterolepisma* Escherich; hence *Notolepisma* must be considered as a synonym of *Heterolepisma,* and the New Zealand species must be listed as *Heterolepisma zelandica* (Tillyard). Tillyard (1924) mentions stylets to be present on abdominal segments I-IX; this is almost certainly an error, as York Bay specimens (females only) possess four pairs of stylets only. South Island specimens agree well with those from York Bay, as to structure and chaetotaxy, but there are only two pairs of stylets in both sexes. *Isolepisma howensis* (Womersley, 1942) from Lord Howe Island, also agrees closely with *zelandica,* but the females possess three and the males two pairs of stylets. It is very probable that *howensis* is just another population of *zelandica,* though until additional evidence becomes available the synonomy is not established.

ALLACROTELSA Silvestri

Lampropholis Menge, *in* Koch and Berendt, 1854, Organische Reste im Bernstein, 1(2):117 (preoccupied by *Lampropholis* Fitzinger, 1843, Systema Reptilium :22).

Allacrotelsa Silvestri, 1934, Bull. Bernice P. Bishop Mus. 114:307.

Stachisma Wygodzinsky, 1942, Rev. Brasil. Biol. 2(1):42. *New synonymy.*

A comparison of the redescription of the Baltic amber *Lampropholis dubia* (Koch and Berendt, 1854) given by Silvestri (1912), with specimens of recent species shows the generic identity of *Lampropholis* Menge, *Allacrotelsa* Silvestri and *Stachisma* Wygodzinsky. *Lampropholis* Menge is preoccupied by *Lampropholis* Fitzinger; the next available name, *Allacrotelsa* Silvestri, must thus be used as the correct one for the genus, now including Recent and Fossil species.

Allacrotelsa is characterized among the Lepismatidae with smooth macrochaetae not only by details of its chaetotaxy, but also by the slender terminal segment of the labial palp, the pseudosegmented parameres of the male, and the elongate tenth tergite.

The following Recent and Fossil species included in *Allacrotelsa* form a closely knit group and differ morphologically only by minor characters.

ALLACROTELSA DUBIA (Koch and Berendt) new combination

Lepisma dubia Koch and Berendt, 1854, Organische Reste im Bernstein 1(2):116.

Lampropholis dubia: Silvestri, 1913, Schrift. phys.-ök. Ges. Königsberg 53:47 (with complete synonymy).

The species is known only from the Baltic amber. Jeannel

(1960) states that "Lapropholis (sic) dubia K. & B . . . still exists . . "; it has not been possible to ascertain the source of this statement.

ALLACROTELSA SPINULATA (Packard)

Lepisma spinulata Packard, 1873, Fifth Ann. Rep. Peabody Ac. Sc.: 48.
Acrotelsa spinulata: Escherich, 1905, Zoologica (Stuttgart) 43:112.
Acrotelsa spinulata: Silvestri, 1948, Boll. Lab. Entom. Agr. Portici 8:100 (redescription).
Allacrotelsa spinata (sic) F: Silvestri, 1934, Bull. Bernice P. Bishop Mus. 114; 307.
Stachisma mexicana Wygodzinsky, 1949, Act. Zool. Lill. 6:224. *New synonymy.*

This species is widely distributed over at least the Western and Southwestern United States, and is found also in Baja California. Its considerable ecological range is remarkable; it is equally well at home in the mesophytic forests of the California coast ranges and the semi-arid regions of Southern California and Arizona, though it does not seem to occur under conditions of extreme aridity. Specimens can be collected in loose soil, in leaf litter, under and between rocks, in rotten wood or under the bark of fallen or standing trees; it is to be supposed that the latter habit was shared by *A. dubia* as this would easily explain the relative frequency of that species in the Baltic amber.

A. spinulata differs from *A. dubia* by the somewhat more pointed tenth tergite, the longer inner processes of the coxopodite IX in the female, the larger number of macrochaetae in the median bristle-combs of the urosternites, and the presence of 3 + 3 bristle-combs on urotergite VIII (2+2 in *dubia*). The peculiar trichobothrium situated subbasally on the dorsal surface of the hind tibia as described for *dubia*, is equally found in *spinulata* (though not mentioned or shown in Silvestri's [1948] redescription of the latter). As in *A. kraepelini*, the length of the ovipositor in *spinulata* is somewhat variable; there is no correlation between body size and length of ovipositor.

ALLACROTELSA KRAEPELINI (Escherich)

Ctenolepisma kraepelini Escherich, 1905, Zoologica (Stuttgart) 18:90.
Isolepisma kraepelini: Silvestri, 1923, Trans. R. Ent. Soc. London: 259.
Stachisma kraepelini: Wygodzinsky, 1942, Rev. Brasil. Biol. 2(1):42.
Allacrotelsa kraepelini: Wygodzinsky, 1952, Acta Ent. Mus. Nat. Pragae 26:8.

This species is found in the mediterranean region, as far east as Turkey and Mesopotamia; it is apparently quite frequent.

The differences between *A. kraepelini* and *A. spinulata* have

been indicated by Wygodzinsky (1949). *A. kraepelini* agrees with *dubia* by the number of bristle-combs on the eighth urotergite, but seems to differ by the presence of a median bristle-comb on urosternite VIII of the male, and the number of macrochaetae in this and the remaining median ventral bristle-combs. Difference in total size (*kraepelini* 14, *dubia* 9 mm) may be partly responsible for differences in the above and other meristic characters.

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A NEW GENUS AND SPECIES OF EUAESTHETINAE FROM CHILE

(Coleoptera: Staphylinidae)

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The purpose of this paper is to describe a new genus and species of Euaesthetinae from Chile, to show some of its relationships to the rest of the subfamily, and to point out some of its primitive features.[1]

I wish to express my thanks to Mr. L. Peña of Santiago, Chile, who supplied the material and to Mr. Robert Banfill of Columbus, Montana, for technical assistance.

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[1] This paper is part of a more general study of the Euaesthetinae which has been supported in large part by the National Science Foundation (Grant No. G-6126).

Alzadaesthetus new genus

(Figures A–M)

Distinguished from all other genera by the shape of the head, pronotum, and elytra together with the tarsal formula. Most closely related to *Ctenomastax* Kraatz from which it can be distinguished by its winglessness and the 5–5–5 tarsal formula.

Head shaped as in Fig. A. Antennae insert at corner of the vertex with a slight raised edge to the vertex at the point of insertion. Eyes relatively large. Neck prominent and smooth. Gular sutures confluent along their entire length. Antennae 11-segmented, shaped as in Fig. G, with two large basal segments followed by five almost equally small segments then followed by two smaller more angular segments and the three progressively larger segments. The last three segments give the impression of a club. Mandibles large, toothed, shaped as in Fig. I. Maxillae shaped as in Fig. H; palpi large and conspicuous, three-segmented. Labium small, shaped as in Fig. F; palpi three-segmented. Labrum shaped as in Fig. E, with fifteen teeth along the anterior edge.

Pronotum slightly wider than the head, cylindrical in form, shaped as in Fig. A. Elytra a little wider than the pronotum, shaped as in Fig. A. Prosternum trapezoidal in shape, relatively wide. Prothoracic coxal cavities very nearly contiguous, separated by only a very narrow process; coxal cavities open behind. Mesothoracic coxal cavities nearly contiguous, separated by a narrow, pointed mesosternal process bearing a carina along the midline. Metasternum as long as the mesosternum, feebly punctate, with no unusual features. Secondary wings absent; elytra fused along the midline. Prothoracic leg shaped as in Fig. B; coxae with processes longer than the coxae themselves. Mesothoracic legs shaped as in Fig. C. Metathoracic legs shaped as in Fig. D. Meso- and metathoracic legs with ctenidia at the edge of the tibiae. Tarsal formula 5-5-5.

Overall abdominal shape subconical with the dorsal surface arcuate; narrow paratergites present on segments III–VII; abdominal sternite III carinate along the midline, all other sternites smooth in the female; sternite IV of male has two short processes on the posterior edge (Fig. L); sternite VIII of male with a large indentation on the posterior edge shaped as in Fig. M; sternum VIII of female unmodified; segment IX complex of female shaped as in *Turellus* Sharp; sternum IX of male modified into a dagger-shaped lobe. Male genitalia bulbous, heavily sclerotized; presumably variable specifically.

Type of the genus: Alzadaesthetus chilensis Kistner, described below.

Alzadaesthetus chilensis Kistner, new species

(Figures A–M)

Distinguished from all other species by the sculpture of the pronotum and elytra together with the shape of the male genitalia.

Head, pronotum, elytra, and abdomen dark reddish brown in color; legs and mouthparts yellowish brown. Head, pronotum, elytra, and abdomen with large punctures scattered over their surfaces; density and shape as

shown in Fig. A. Each puncture except for a row of eight along the base of the pronotum contains a short, thin, yellow seta. Neck smooth behind the occipital suture. Pronotum also with a broad depressed area in the center (indicated by dotted lines in the figure). Head, pronotum and elytra shaped as in Fig. A. Abdominal sternite IV of male shaped as in Fig. L with two processes on the posterior border. Abdominal sternite VIII of male shaped as in Fig. M, note the large indentation on the posterior border. Aedeagus heavily sclerotized, shaped as in Fig. J when viewed from the lateral surface; anterior portion ventrally produced, so that the median ventral fossa is very close to the basal portion (indicated in dotted lines, small circle); anterior edge with a broadly indented area with a circular shape (indicated in dotted lines, large circle); parameres thin, inserted under the ventrally produced aedeagus; ventral view of aedeagus and parameres shaped as in Fig. K.

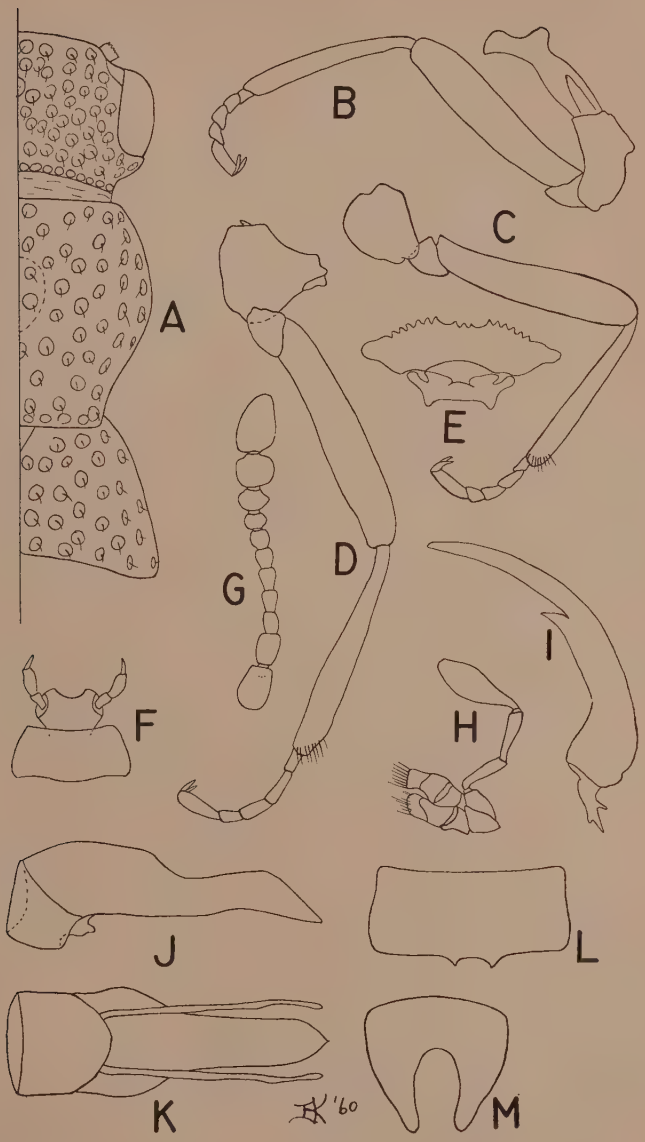
Head length, 0.29–0.32 mm.; pronotum length, 0.52–0.55 mm.; elytra length, 0.24–0.32. Number measured, 5.

Holotype male (No. e 988) from CHILE: PUYEHUE, RIO GOL-GOL, 350 M., March 1955, collected by L. Pena. In the collection of the author to be eventually deposited in the collection of the Chicago Natural History Museum. Three males, one female (1 male and 1 female on micro-slides), same data as the holotype and designated as paratypes are in the collection of the author.

This genus presents certain problems in interpreting the phylogeny of the Euaesthetinae. It has certain primitive features which consist of the following: The 5–5–5 tarsal formula which is unique within the Euaesthetinae; all other genera have at least one of the pair of tarsi with fewer than five subsegments. The relatively large antennae with well-developed segments which are closely similar to those found in *Ctenomastax* Kraatz. The large well-developed eyes and the large punctures with fine setae in each. Specialized features are the lack of secondary wings and the fusion of the elytra along the midline. The precise phylogenetic significance of the genus has not as yet been determined, but the presence of this genus tends to show that wing-loss must have occurred quite a few times in the phylogeny of the

EXPLANATION OF FIGURES

Alzadaesthetus chilensis Kistner: Fig. A, head, pronotum, and elytra, dorsal, right half; fig. B, prothoracic leg; fig. C, mesothoracic leg; fig. D, metathoracic leg; fig. E, labrum; fig. F, labium; fig. G, antenna; fig. H, maxilla; fig. I, mandible; fig. J, male genitalia, lateral view with parameres removed; fig. K, male genitalia, ventral view; fig. L, abdominal sternite IV, showing protuberances on the posterior border; fig. M, abdominal sternite VIII of male.


A
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Euaesthetinae and while *Alzadaesthetus* shows this feature it is the most primitive genus of the subfamily and represents yet another relict genus in the fauna of Chile.

A NOTE ON SOME INSECTS ASSOCIATED WITH XYLOCOPIDAE IN THE EASTERN CAPE PROVINCE, SOUTH AFRICA

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In October 1960 some dead and dying branches of seringa *(Melia azerdarach* L.*)*, an exotic ornamental tree, containing the nests of a large and common species of xylocopid *Xylocopa (Mesotrichia) flavorufa* Degeer, were obtained from a Walmer, Port Elizabeth, garden. Adult carpenter bees were flying in and out of the holes in the branches at the time, while fresh bees continued to emerge for some weeks from the affected wood which had been placed in cages in the laboratory. At the same time a small species of chalcid was observed in the cages in thousands, as well as individuals of a pyralid moth which emerged daily from the xylocopid tunnels.

Several sections of the infested branches were opened and were found to be riddled with the ramifying tunnels and cells of the carpenter bee. Many of the cells contained living larvae and pupae in varying stages of development, while in others were found well-advanced but mummified larvae from which the chalcid had emerged or was emerging. Each of these parasitized larvae was a mass of chalcid pupae. It was obviously a case of polyembryony, as is so often found in larvae of the Phytometridae, and which this instance so closely resembled.

The chalcid parasite is described as a new species of *Girautella* (Encyritidae) by Doutt and Annecke (1961). There is a considerable literature on chalcids from the nests of Xylocopidae, and it is interesting to note that polyembryonic species of Encyrtidae have previously been recorded from xylocopid larvae in Java (Girault, 1919-21) and India (Mahdihassan, 1957). In the former paper there is a note by W. Roepke on these parasites which reads as follows: "Freshly emerged imagines are sometimes seen in great numbers running on the timber wherein the *Xylocopa* form galleries. They enter the holes and penetrate into the galleries till

they encounter the *Xylocopa* larvae. Some time after the parasitizing has taken place, the Xylocopa larvae become mummified, their colour changing into brown. The chalcids develop in enormous numbers in the body of the host."

Later, in February, nests of both *X. flavorufa* and *Xylocopa (Mesotrichia) divisa* Klug were found in the decayed portion of a wooden pergola in Port Elizabeth, and larvae of the latter species were found to be parasitized by the same or a closely related species of chalcid.

The pyralid moth, referred to above, continued to emerge from the xylocopid-infested wood until 8 December; 170 individuals were obtained from 2 November. Many of the galleries of the carpenter bee were found to be lined with tough and dense silken webbing, while equally tough and dense masses of cocoons were to be found here and there, often in the actual cells. This webbing in the form of tubes or tunnels ramified throughout many of the nests and extended to the openings or entrances. The cocoon masses consisted of bundles of the elongate cocoons placed side by side, the silk being so tough that it is virtually impossible to tear them apart. Up to at least 18 cocoons have been found in one bundle or mass.

In some of the galleries the pyralid larvae were found. The larvae is maggot-like, 13 to 14 mm in length, tapering at either end, broad, soft and yellowish, but the pronotum is darker in color and more heavily chitinized, while the head and mouth-parts are dark brown. It apparently feeds upon the bee-bread or pollen provided for the xylocopid larvae, and possibly upon the immature stages of the bee as well. Neither pollen nor bee larvae and pupae were found in cells occupied by the pyralid.

In its appearance and habits this pyralid closely resembles *Aphomia sociella* (L.), a well-known European species which lives in the nests of *Bombus* and *Vespula* species, feeding upon the honey, pollen, wax, debris, and also upon the immature stages of its hosts. At the same time it riddles the bees' nests with its silk-lined tunnels (Beirne, 1952). It has been suspected of occurring in the hives of the honeybee and has been introduced into North America where it occurs in the nests of bumblebees (Milum, 1940).

The species with which we are at present concerned was at first thought to be *A. sociella* but it has since been established

that it is a new species, and for the present can only be determined as being *Aphomia* sp. near *sociella* L. There are apparently no records of *A. sociella* in South Africa.

Both the pyralid and encyrtid, the occurrence and incidence of which have been described above, must exert a considerable controlling influence upon their xylocopid hosts.

Nests of a species of Megachilidae, in this case a true leaf-cutting bee, were also found in the same branches occupied by *X. flavorufa*. Although this megachilid nested in separate burrows or tunnels which it made in comparatively hard and sound wood, its burrow frequently connected with the xylocopid galleries, and the leaf-cutting bees apparently used the xylocopid entrance holes to gain access to their nests. The megachilid has now been determined as being a species of *Lithurgus*.

A few winged individuals of an unidentified species of ant also emerged from the galleries of *X. flavorufa*.

Acknowledgments

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NEW SPECIES OF BARK AND TIMBER BEETLES FROM THE NEOTROPICAL REGION. 186. Contribution of the morphology and taxonomy of the Scolytoidea.

(Coleoptera)

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In this study, 16 species or subspecies are described as new, and the previously unknown males of two additional species are characterized.

Chramesus peruanus Schedl, new species

Male.—Fuscous, apex of the pronotum darker, 2.2 mm. long, 1.74 times as long as wide. This new species is remarkable in its sculpture and vestiture and cannot be mistaken for any other species of the Neotropical region. *Front* elongate, broadly impressed, the impression limited at the sides below the eyes by a sharp carina on each side, densely covered by medium sized punctures bearing short erect setae. The antennal scape very slender, club-shaped at its distal extremity and with a brush of longer hairs at the thickened portion. *Pronotum* much wider than long (35:19) when viewed from above, widest near the base, postero-lateral angles broadly rounded, the sides gradually incurved from the base to the rather narrowly rounded apex, the subapical constriction merely indicated; ascending from the apex to the base, convex, densely and finely punctured, the punctures bearing inclined hairlike scales of a pale yellow colour, distinctly darker on a small spot on each side of the median line near the base and on the median portion of the apex. Scutellum minute. *Elytra* somewhat wider (38:35) and more than twice as long as the pronotum, the sides subparallel on the basal two-fifths, apex very broadly rounded, with a shallow transverse depression behind the base, declivity commencing after the basal third and strongly convex; with regular rows of small remotely placed punctures, the first striae impressed, the others not distinctly so, the interstices wide, covered with very short stout yellowish scales, the density of these scales corresponding about a fourfold arrangement, each interstice also with a median row of dark more erect longer and slender scales, the colour of the ground scales not quite uniform, on a small patch on each side of the suture in the lower part of the declivity the majority of these scales dark brown.

Holotype male from PERU, URUBAMBA, OLLANTAITEMBO, DPT. CUZEA, 31-I-1949, Dr. Kuschel (Schedl collection).

The new species is about the same size as *Chramesus globosus* Hag. but the pronotum and the elytra are much more shining than the nearly opaque *C. globosus*, the elytral striae are less distinct, the scales on the interstices less numerous, more elongate and pointed apically while those of *C. globosus* Hag. are much

stouter, with rounded apices covering the surface much more than in the new species.

Stephanopodius boliviae Schedl, new species

Dark reddish brown, 1.5 mm. long, nearly 2.2 times as long as wide. The first species of the genus *Stephanopodius* so far known from the Neotropical region. *Front* broadly convex, with a wide impression extending from eye to eye, densely punctured, the punctures bearing short scale-like yellowish hairs being somewhat longer along the epistomal margin and on the sides, minutely punctulate on the convex portion towards the vertex. *Pronotum* wider than long (20:17), postero-lateral angles rectangular, feebly rounded, sides subparallel on the basal two fifths, broadly rounded at the apex, apical margin with some minute very low asperities; summit in the center, apical area very steeply convex, covered with medium sized broad asperities in nearly concentric rows, basal area and the sides subopaque, minutely punctulate and very densely and rather coarsely punctured, anterior area with yellow scale-like hairs following the asperities. Scutellum very small, punctured. *Elytra* but feebly wider and 1.7 times as long as the pronotum, sides parallel on little more than the basal half, apex very broadly rounded, declivity commencing short behind the middle and rather strongly convex; disc striate-punctate, the striae feebly impressed and very narrow, the strial punctures rather small, the interstices transversely wrinkled giving the entire surface a roughly sculptured appearance, additional each interstice with a median series of small punctures bearing short yellowish scales (largely abraded in both specimens); declivity with the strial punctures bearing minute short hairs, the interstitial scales somewhat larger and stouter.

Holotype and paratype from Bolivia, Do Santa Cruz, Prov. Jaita, Buenovista, X-1949, Martinez (Schedl collection).

From the genotype *Stephanopodius dispar* Egg. the new species may be distinguished by the much smaller size, 1.5 against 1.8–2.0 mm., the more globose pronotum, the apical asperities being much smaller and connected at their base to form concentric ridges, the elytra without the strongly impressed striae of *S. dispar* and the vestiture finer, more clearly arranged on the hardly convex interstices.

Pityophthorus epistomalis Schedl, new species

Testaceous, 1.3 mm. long, 2.7 times as long as wide. This new species is remarkable by the formation of the epistomal margin not observed so far within the genus *Pityophthorus* Eichoff. *Front* shining, broadly convex, minutely punctured, devoid of pubescence; close to the epistomal margin with a distinct narrow transverse impression, the margin itself transverse, with a long cylindrical prolongation in the middle reaching far between the mandibles. *Pronotum* much longer than wide (22:14), postero-lateral angles rectangular and feebly rounded, sides parallel on

the basal two-fifths, broadly rounded in front, the subapical constriction very feebly developed, apical margin with very numerous low asperities connected at their base; summit somewhat before the middle, anterior area rather weakly convex, densely covered by concentric rows of low asperities similarly formed as on the apical margin, basal area shining, finely punctured; pubescence inconspicuous. Scutellum triangular, shining. *Elytra* as wide and 1.3 times as long as the pronotum, cylindrical up to the middle, feebly convergent behind, apex somewhat angulately rounded, declivity commencing distinctly behind the middle, obliquely convex; disc subshining, with rows of medium sized punctures in subimpressed lines, the first striae more distinctly depressed, the sparsely placed interstitial punctures difficult to recognize; declivity with the suture moderately elevated and with a series of fine punctures bearing short fine setae, first striae more strongly impressed, lateral convexities low, about as high as the suture, with some setose punctures on the third interstices and on the sides.

Holotype from PANAMA CANAL ZONE, BARRO COLORADO ISL., GATUN LAKE, 26-26 III-1924; Tres Rio Plantation, Gatun Lake, 1931, T. O. Tschokke. Holotype in collection Cornell University, paratype in the collection of Schedl.

Pityophthorus gentilis Schedl, new species

Female.—Testaceous, 1.4–1.6 mm. long, 2.8 times as long as wide. Similar to *Pityophthorus epistomalis* n. sp. but with a different form of the front in both sexes, the declivital sulcus deeper and with pointed tubercles on the lateral convexities. *Front* plano-convex, densely punctured and with a short pubescence on a semicircular area; the eyes with rather large facets, deeply emarginate in front. *Pronotum* longer than wide (18:15), of exactly the same general shape and sculpture as in *Pityohthorus epistomalis* n. sp. except that the punctation on the basal area is more distinct. *Elytra* as wide and 1.5 times as long as the pronotum, cylindrical to somewhat beyond the middle, apex subacuminate, declivity commencing well behind the middle, rather short and steeply oblique; disc with regular rows of closely placed and medium sized punctures, the first striae distinctly impressed, the interstices shining, each one with a row of much finer punctures; declivity with the suture but feebly elevated and with two to three minute granules bearing rather long pale yellow setae, first striae strongly impressed, lateral convexities low, but indistinctly higher than the suture, armed with two larger and pointed tubercles above, one to two smaller ones below, several other such small and setose granules on the sides.

Male.—Somewhat stouter than the female, front of the head less dense and more coarsely punctured, pubescence inconspicuous, the lateral convexities of the elytral declivity higher, the upper tubercles larger and the sulcus deeper.

Holotype from PANAMA CANAL ZONE, BARRO COLORADO ISL., GATUN LAKE, April 1924, J. C. Bradley; Tres Rios Plantation,

Gatun Lake, 1931, T. O. Zschokke. Holotype and allotype in the collection of the Cornell University, paratypes in the Schedl collection.

Pityophthorus surinamensis Schedl, new species

Female.—Testaceous, 1.46 mm. long, 3.3 times as long as wide. This new species seems to be rather closely allied to *Pityophthorus shannoni* Blackman, being somewhat smaller, more slender, the punctation of the basal area of the pronotum and the elytral disc more obscurely punctured and the suture not elevated at the elytral declivity. *Front* plano-convex, entirely covered with a short and dense brush of pale yellow scale-like hairs. *Pronotum* much longer than wide (18:13), postero-lateral angles rectangular and feebly rounded, sides parallel on the basal half, rather broadly rounded at the apex, subapical constriction distinct, apical margin armed with numerous low and small asperities being connected at their base; summit somewhat before the middle, anterior area moderately and obliquely convex, covered with numerous small low asperities, basal area shining and very finely punctured; pubescence restricted to short fine setae on the anterior area. Scutellum small, triangular, finely punctured. *Elytra* as wide and 1.38 times as long as the pronotum, cylindrical to beyond the middle, subacuminate at the apex, declivity commencing somewhat behind the middle, obliquely convex, with a very deep sulcus along the suture; disc subshining, with regular rows of medium sized shallow punctures in hardly impressed lines, the punctation of the interstices indistinct; declivity with the suture not elevated, the first striae strongly impressed but without distinct punctures, the sulcus very narrow, the lateral convexities high and abruptly ascending bearing at their inner edges three to four well developed pointed and setose tubercles, irregularly punctured and with short erect setae at the sides.

Male.—Much stouter, 3.0 times as long as wide, front shining, very finely punctured, pubescence inconspicuous, elytral declivity shorter and steeper, the apex but angulately rounded.

Holotype from SURINAM, MOENGO, BOVEN, COTTICA *R.*, 17. 20, 24 May 1927, Cornell University. Holotype and allotype in the collection of the Cornell University. paratypes in the Schedl collection.

Thamnophthorus elongatus Schedl, new species

Fuscous, 2.3 mm. long, 2.8 times as long as wide. Compared with *Thamnophthorus linearis* Schedl this new species is more coarsely sculptured on the pronotum, the punctures of the elytral striae are more irregular in arrangement, the declivity has the suture indistinctly elevated, etc. *Front* entirely covered by the pronotum. *Pronotum* about as wide as long, widest behind the middle, postero-lateral angles somewhat more than 90 degrees, not distinctly rounded, sides feebly divergent on the basal two-fifths, thence obliquely narrowed, apex broadly rounded, apical margin with a series of low small asperities; summit in the middle, anterior area obliquely convex, very densely covered with small asperities gradually

changing over to the coarsely and roughly punctured basal area, median line impunctate from the base to the summit; pubescence very short, inconspicuous. Scutellum coat-of-arms shaped, shining, impunctate. *Elytra* but feebly wider and well twice as long as the pronotum, cylindrical to beyond the middle, broadly rounded at the apex, declivity commencing well behind the middle, rather strongly convex; disc shining, the first striae impressed, the strial punctures very irregular in arrangement, the interstices rather wide, the punctation just as irregular than those of the striae; on the declivity the suture very feebly elevated, the punctures much smaller than on the disc and regularly placed, the second interstice wide and feebly impressed, with a few transverse wrinkles, irregularly punctured at the sides, pubescence very short, restricted to the sides.

Holotype from BOLIVIA, COCHABAMBA, TAGUINA, 27-XII-1948, Dr. Kuschel; in the collection of Schedl.

Mimips mimicus Schedl, new species

Reddish brown, 2.0 mm. long, 2.5 times as long as wide. Compared with *Mimips angylocalyx* Schedl this new species is smaller, somewhat more slender and the declivital armature is quite different. *Front* convex above, somewhat transversely depressed below, rather coarsely and densely punctured, the punctures becoming smaller towards the impunctate median line extending from the epistomal margin up to the beginning of the convexity; pubescence sparse, inconspicuous. *Pronotum* feebly longer than wide (24:23), widest near the base, postero-lateral angles rounded, the sides subparallel on the basal two-fifths, thence rather strongly and obliquely incurved, anterior margin rather broadly rounded and ornamented by a series of minute remotely placed asperities; summit in the middle, anterior area convex and densely covered with small asperities, basal area strongly and closely punctured; pubescence sparse, rather long and erect. Scutellum minute, shining. *Elytra* feebly wider and 1.5 times as long as the pronotum, sides parallel on the basal half, apex broadly rounded, declivity steep, similar to that of *Mimips angylocalyx* Schedl; disc with densely placed rows of medium sized punctures but not situated in impressed lines so that it is quite difficult to distinguish the main striae from those of the interstices, all punctures bearing short erect hairs; the upper limitation of the declivital face ridgelike, beginning from the second interstice which is armed with a short blunt tubercle, a more triangular tooth on the third interstice and on the ridge further down three smaller tubercles in about equal distances, the first one more clearly connected with the second tooth; declivital face broadly impressed, shining, densely punctured, the apical margin rimlike and crenulate.

Holotype from COSTA RICA, TURRIALBA, nachts am trockenen Holz, F. Nevermann; in collection of Schedl.

Formerly I had placed this species in the genus *Ips* De Geer but there are much more characteristics indicating its relationship to *Mimips* Egg.

Xyleborus assiduus Schedl, new species

Female.—Reddish brown, 1.8 mm. long, 3.8 times as long as wide. The next relative of this new species, *Xyleborus usagaricus* Egg., originates from Africa and is much larger and has the elytral declivity longer, more sloping, with another type of lateral process, etc. *Front* largely covered by the broadly emarginate front margin of the pronotum, as far as visible aplanate, firmly punctured. *Pronotum* much longer than wide (21:14), postero-lateral angles rectangular and feebly rounded, sides parallel on the basal half, apex broadly rounded; summit far in front of the middle, apical area short, moderately convex and very finely asperate, basal area shining, very finely and sparserly punctured; pubescence short and erect, restricted to the sides and the apical area. Scutellum very small, knoblike. *Elytra* as wide and 1.5 times as long as the pronotum, cylindrical, sides parallel on the basal half, thence gradually and feebly narrowed, apical margin broadly rounded, declivity commencing somewhat behind the middle, with a broad moderately deep impression extending in the lower half up to the well marked lateral margins; disc shining, rather remotely covered with fine punctures without a distinct regular arrangement; at the beginning of the declivital cavity with a short rather blunt tooth on the third interstice on each side, a much larger laterally compressed toothlike structure blunt at its extremity on the postero-lateral angles, the space between these two processes rather wide, lateral margin between the lower and upper tooth with a series of setose granules, declivital cavity punctate.

Holotype female from VENEZUELA, MT. DUIDA, 4-XI-1928, Ac. 29500, Tate, Nr 99 in the California Academy of Sciences, one paratype in the Schedl collection.

XYLEBORUS CORNICULATUS Schedl

The previously undescribed male of this species may be characterized as follows:

Male.—Similar in colour and size to the female, but the pronotum more elongate (34:24), rectangular, postero-lateral angles strongly rounded, the sides parallel up to the middle, thence feebly narrowed, apex transverse, with the antero-lateral angles distinct although broadly rounded, apical margin with a median hornlike structure bend upwards, followed by a deep and broad cavity which is remotely punctured, on the outside of the lateral convexities with fine granules bearing long slender hairs, fine transverse rugae on the posterior convexity. *Elytra* stouter, 1.7 times as long as wide, feebly narrower than the pronotum, cylindrical on more than the basal half, more abruptly incurved behind than in the female, the sulcus of the declivity wider, also the apex, the declivital face more steeply oblique, the lateral convexities of the sulcus higher and the pointed tubercles more numerous and larger.

An allotype male from Columbia, Puerto Tejada, IX-1955, ex *Theobroma cacao*, Steinhausen is designated and deposited in the collection of Schedl.

Xyleborus commixtus Blandford

The previously unknown male of this species is described herewith:

Male.—Reddish brown, 3.7 mm. long, 2.5 times as long as wide. *Front* elongate, with the sides subparallel, aplanate, with a longitudinal impression toward the vertex thus forming there two nodosities, shining, finely punctured. *Pronotum* longer than wide (50:44), widest at the beginning of the basal fourth, postero-lateral angles strongly rounded, sides subparallel in the basal four-fifths, antero-lateral angles very well developed and feebly rounded, apical margin produced into a long triangular horn bend upwards at its tip, with a deep cavity behind extending up to the middle although gradually becoming shallower, the entire pronotum irregularly punctured, the punctures finer at the lateral convexities of the anterior impression, more varying in size and with longer fine hairs at the sides. *Elytra* feebly narrower and 1.1 times as long as the pronotum, declivity more abruptly oblique than in the female, the apical margin more broadly rounded.

An allotype male and one alloparatype from Columbia, Puerto Tejada, IX-1955, ex *Theobroma cacao*, Steinhausen leg. are designated and deposited in the collection of Schedl.

Corthylus uniseptis Schedl, new species

Male.—Piceous, very shining, 2.3 mm. long, 2.6 times as long as wide. Allied to *Corthylus nudipennis* Schedl from Brazil but smaller, the suture on the elytral declivity not as highly elevated, the punctation strongly reduced on the declivital face and with only two minute granules. *Front* feebly convex, subopaque, minutely punctulate, rather sparsely and very finely punctured, with a few hairs along the epistomal margin. *Pronotum* wider than long (27:25), angle of the postero-lateral corners of more than 90 degrees, sides broadly arcuate in the basal half, apex broadly rounded, subapical constriction indicated, apical margin with a series of low closely placed asperities; summit in the middle, anterior area strongly convex, densely covered with low and broad asperities, basal area subshining, without any distinct punctation and without conspicuous pubescence. Scutellum large, triangular and shining. *Elytra* feebly narrower (26:27) and 1.36 times as long as the pronotum, widest near the base, sides parallel on the basal third, thence feebly and obliquely narrowed in nearly straight lines, apex broadly rounded with well defined postero-lateral angles and somewhat angulate near the suture, apical margin acute between the postero-lateral angles, declivity short, steeply convex, restricted to the apical two-fifths of the elytra; disc brightly shining, without any distinct punctation, declivity with the suture very narrowly elevated bearing two to three minute granules, on the lateral convexities in the space of the third interstices two remotely placed very fine granules on each side, the fine punctures of the first striae distinct, laterally with similar fine punctures in no regular arrangement.

Holotype male from Mexico, Cordoba, Ver., Dr. A. Fenyes

is deposited in the California Academy of Sciences; one paratype in the Schedl collection.

Corthylus subsulcatus Schedl, new species

Female.—Piceous, 2.9 mm. long, not quite 2.2 times as long as wide. The front and the antennae similar as in *Corthylus panamanensis* Blandford, but with a different type of elytral declivity. *Front* opaque, broadly impressed from eye to eye, finely and densely punctured, the punctures bearing short erect setae, median longitudinal line impunctate and somewhat raised above, minutely punctate on the vertex. *Pronotum* wider than long (38:32), postero-lateral angles rectangular, very feebly rounded, sides parallel on the basal two-fifths, apex moderately broadly rounded, subapical constriction indicated, apical margin rimlike elevated with indications of low asperities; summit distinctly behind the middle, anterior area convex, covered with very large low asperities becoming fine transverse rugae near the summit, basal area polished, the extremely fine punctation difficult to recognize. Scutellum rather large, with a few punctures. *Elytra* feebly wider and 1.6 times as long as the pronotum, widest after the basal third, sides very broadly arcuate, apex very broadly rounded, declivity short and very steeply convex; disc sparsely and very finely punctured, the strial punctures not quite regular, those of the interstices less numerous; declivity narrowly elevated, with four minute granules bearing very long setae on each side, a rather broad sulcus along the second interstices, the punctation of the entire declivity somewhat coarser but just as irregular than on the disc, lateral convexities feebly higher than the suture, three setose granules on the third interstice, a few more on the sides.

Holotype female, from BOLIVIA, DO COCHABAMA, PROV. CHAPARA, KM 150, JUNGAS DEL PLAMAR. III-1953, Martinez is deposited in the Schedl collection.

Pterocyclon turbinatum Schedl, new species

Reddish brown, basal half of the pronotum testaceous, 2.0 mm. long, 2.8 times as long as wide. Allied to *Pterocyclon minutissimum* Schedl but larger, the elytra more cuneiform, the declivital sulcus more oblique and the two tubercles differently arranged. *Front* convex, rather shining, minutely punctulate, regularly punctured, the punctures of moderate size, a longitudinal line extending from the epistomal margin up to the vertex impunctate. *Pronotum* longer than wide (24:21), postero-lateral angles rectangular, feebly rounded, sides parallel on the basal third, thence gradually and obliquely incurved, apex broadly rounded, apical margin with closely placed very low small asperities; summit distinctly before the middle, anterior area moderately convex, densely covered with very small asperities, basal area long, shining, with some minute punctures difficult to recognize even under the binocular; pubescence inconspicuous. Scutellum of medium size, impunctate. *Elytra* as wide and 1.4 times as long as the pronotum, the sides parallel on the basal third, behind rather strongly cuneiform, apex broadly rounded and with a medium

sized deep emargination at the suture, declivity commencing in the middle, very oblique and broadly impressed; disc with irregular rows of minute punctures, the interstices also with some punctures of the same size; declivity with the suture very narrowly and feebly elevated, with a few small punctures, the sulcus more coarsely punctured, the punctures arranged in rows, the lateral convexities high, with a minute pointed tubercle at the commencement of the sulcus on the first interstice, two larger ones below on the lateral convexity, the distance from one to the other of equal length, the apical margin well defined.

Holotype from MEXICO, CORDOBA, VER., Dr. A. Fenyes, and is deposited in the California Academy of Sciences; one paratype is in the Schedl collection.

Platypus bilobus Schedl, new species

Male.—Rather shining, dark reddish brown, 7.9 mm. long, three times as long as wide. This species evidently belonging into the *Platypi truncati* has no closer relative so far described. *Front* aplanate, polished and finely punctured above, feebly transversely depressed just above the epistomal margin which is slightly arcuate in the middle, obliquely edged at the sides, this impression more coarsely punctured, the punctures more crowded at the antero-lateral corners, a short feebly raised carin in the center; pubescence restricted to the anterior third. *Pronotum* quadrate, as long as wide, widest short in front of the middle, postero-lateral angles rectangular and very feebly rounded, sides nearly straight, apex transverse with a shallow arcuate extension in the middle, surface minute chagrined, finely and scattered punctured, median sulcus very fine, accompagned on the basal two-thirds by a distinctly deeper sulcus on each side, in the anterior third by a small patch of longitudinal strigose punctures. *Elytra* feebly wider and twice as long as the pronotum, the sides straight in the basal half, thence very feebly incurved, apex consisting of a large triangular lobe on each side of the suture, the triangular emargination at the suture with its inner angle of about 90 degrees, declivity short, restricted to the apical fourth, obliquely convex; disc finely striate-punctate, the striae feebly impressed, somewhat deeper towards the declivity, the strial punctures comparatively small and remotely placed, distance from one to the other punctures somewhat larger than their diameter, third interstice strongly and triangularly widened towards the base, the fifth similar but distinctly narrower than the third, both densely covered with very fine granules gradually decreasing in size and numbers towards the middle of the disc, appearing as small biseriate punctures towards the declivity, second and fourth interstices with very remotely and uniseriately placed small asperities, similar but somewhat larger and still more remotely placed asperities on the first interstices, remaining interstices with sparsely placed fine punctures; towards the declivity all interstices somewhat convex, the odd ones more strongly so, the first ending in a rather large triangular and horizontal tooth extending over the declivital convexity, the third, fifth and seventh much shorter and rather blunt, the second, fourth, sixth and eighth

lower and ending in transverse lines, all interstices forming an elevated ridge above the declivital face, on the latter the striae continued with rather large punctures and the first interstices developed into strongly convex ridges extending to the inner angle of the apical emargination.

Types, two males from CAYENNE (from an old collection), both in somewhat bad shape in the Schedl collection.

Platypus grandiporus Schedl, new species

Female.—Reddish brown, 4.1 mm. long, 3.3 times as long as wide. This single specimen from Bolivia I have determined a long time ago as *Platypus disciporus* Chapuis but only recently could I compare it with the type. It is quite different in sculpture and the arrangement of the large pores on the pronotum. *Front* aplanate, shining, subimpunctate in the anterior half, a transverse band of large punctures above, rather sparsely and finely punctured towards the vertex; pubescence inconspicuous. *Pronotum* feebly longer than wide (40:34), widest behind the very deep femoral emarginations, surface silky shining, minutely chagrined, extremely finely punctured, median sulcus long, fine and more distinctly impressed anteriorly, near its anterior extremity with a large, oval pore on each side surrounded laterally and basaly with a patch of medium fine punctures bearing long erect hairs. *Elytra* somewhat wider (37:34) and 1.9 times as long as the pronotum, sides subparallel on the basal three-fourths, thence feebly incurved, apex nearly transverse, very feebly arcuate, declivity very short, subperpendicular; disc finely striate-punctate, the strial punctures fine and regularly placed, the striae very feebly impressed, interstices 3, 5, 7 and 9 narrowly raised to form a kind of longitudinal carina, all interstices with a median row of fine punctures, these about as large as those of the striae, more confusely punctured on a short feebly convex space before the perpendicular declivital face, the latter subshining, with irregularly placed minute setose granules, the upper limitation of the face formed by a low ridge.

Holotype female from BOLIVIA is deposited in the Schedl collection.

Platypus perforans Schedl, new species

Female.—Dark reddish brown, brightly shining, 3.9 mm. long, four times as long as wide. Allied to *Platypus macroporus* Chapuis but larger, the front areolate-punctate, the median sulcus of the pronotum much longer, the pores situated more anteriorly, etc. *Front* broadly and shallowly impressed, subshining, minutely punctulate, irregularly areolate-punctate, the punctures somewhat more clearly defined anteriorly. *Pronotum* longer than wide (8.5–7.5), femoral emarginations short and deep, surface shining, with very few extremely fine punctures, a row of larger setose punctures along the anterior margin, median sulcus long and deep extending distinctly beyond the middle, at its anterior extremity with a very large pore on each side, followed by a transverse patch of densely placed medium sized setose punctures. *Elytra* but feebly wider and twice as long as the pronotum, widest short behind the middle, sides nearly straight and feebly divergent to the widest point of the elytra, thence

feebly and arcuately narrowed, apex transverse, with well defined postero-lateral angles; disc very shining, striate-punctate, the striae narrow, feebly but distinctly impressed, the strial punctures comparatively small, the arrangement not very regular, interstices feebly convex, the alternate ones more distinctly so, the punctation largely reduced, the base of the third interstice strongly and triangularly widened, covered with fine transverse wrinkle, all interstices somewhat rugulose and with short erect setae on the very short convex portion behind, the declivital face subperpendicular, the upper margin well defined on the sides.

Holotype female from BOLIVIA, CORVICO, HUARINILLAS, 12-II-1949, Dr. Kuschel is deposited in the Schedl collection.

Platypus pretiosus Schedl, new species

Male.—Reddish brown, 2.78 mm. long, 3.7 times as long as wide. This new species of the *Platypi trispinati* is well marked by its small size, the extreme small triangular emargination at the apex of the elytra and its comparatively large three-spined lateral processes. *Front* flat, densely but shallowly punctured, with sparse and short pubescence. *Pronotum* feebly longer than wide (24:22), widest behind the well developed femoral emarginations, surface subshining, rather densely covered by small but unequal punctures, median sulcus rather long and deep. *Elytra* as wide and twice as long as the pronotum, sides parallel on the basal half, thence gradually incurved and feebly divergent just at the very end of the lateral processes; disc strongly striate-punctate, the striae rather deep, the strial punctures indistinct and confluent in part, interstices, except the third one, rather narrow, uniseriately and rather coarsely punctured, the first interstices narrowly elevated and impunctate, the third much wider, especially towards the base and with some minute punctures; the odd interstices feebly carinate and remotely granulate on the upper part of the declivital convexity, abruptly ceasing half way down, beyond the declivital face minutely punctulate near the suture, more coarsely sculptured on the sides, lateral process short, stout, consisting of the usual three short spines arranged in an isolated triangle, the median emargination at the suture very small about as large as the emargination between the lower and lateral teeth of the lateral processes.

Holotype male from VENEZUELA, MT. DUIDA, 4-XI-1928, Ac. 29500, Tate 99, is deposited in the collections of the California Academy of Sciences; paratypes in the Schedl collection.

Cenocephalus pulchellus minor Schedl, new subspecies

A series of females from SURINAM, MOENGO, BOVEN, COTTICA R., 12 and 17-V-1927, Cornell University show the same general aspect and sculpture than the type of *Cenocephalus pulchellus* Schedl from French Guiana measuring 3.6 mm. in length without the hair ornament of the front. It seems to be reasonable to separate these two forms by proposing the name *minor* for the Surinam specimens at least until the males are known.

GRAPHODERUS PERPLEXUS (SHARP) IN CALIFORNIA

(Coleoptera: Dytiscidae)

Leech and Chandler* list only *Graphoderus occidentalis* (Horn) from California. The following examples of a second species, *G. perplexus* (Sharp) have recently been studied:

1 male, Thousand Lakes, elev. 6500 ft., Shasta Co., Calif., July 12, 1951 (H. P. Chandler).

Numerous specimens, six mi. S. Macdoel, Siskiyou Co., Calif., April 21, 1957 (Joe & Toby Schuh). These were in a permanent pond in which *G. occidentalis* was equally common.

The two species are readily separated by Wallis' key (1939. Canadian Entomologist, 71(6):130):

"2. Posterior pronotal black band not reaching hind margin though sometimes separated from it only by an indefinite reddish line. Male fore-tarsi with 28–32 smaller and 3 larger palettes. Male middle tarsi with 14–15 palettes. Anterior pronotal band not reaching either front or side margins.....*perplexus* Sharp

– Posterior pronotal black band always reaching hind margin.....3

3. Mid-tarsi of ♂ not dilated. Fore-tarsi of ♂ with only 15 palettes. Size smaller, rarely attaining 13.5 mm. Pronotal black bands always attaining fore and hind margins.....*occidentalis* Horn."

It is possible that these are not actually the first records of *G. perplexus* for California. In a rare and little-known book, used as a text for entomology courses at the University of California over 45 years ago (1913. C. W. Woodworth. Guide to California Insects. Pp. [2+] vi + 1–360, 361 [+1] text figs. The Law Press, Berkeley, California), *G. occidentalis* (Horn) and *G. cinereus* (Linnaeus) are listed on p. 184, and according to Wallis (loc. cit.) *G. cinereus* (Horn *nec* Linnaeus) is a synonym of *G. perplexus* (Sharp).—HUGH B. LEECH, *California Academy of Sciences, San Francisco, and* JOE SCHUH, *4039 Shasta Way, Klamath Falls, Oregon.*

* 1956. Aquatic Coleoptera. *In* R. L. Usinger, Aquatic Insects of California, with Keys to North American Genera and California Species. University of California Press, Berkeley and Los Angeles, p. 322.

TWO NEW PHORID FLIES FROM EASTERN ASIA

(Diptera: Phoridae)

THOMAS BORGMEIER, O.F.M.[1]

Among a lot of Phorid flies from the collection of the California Academy of Sciences kindly sent to me for determination by Mr. Paul H. Arnaud, Jr., I found the two new species described below, belonging to the genera *Spiniphora* Malloch (1909) and *Haplophleba* Schmitz (1929).

The species of *Spiniphora* previously described from the Asiatic region are: *apicalis* Brues (1936; Philippines), *genitalis* Schmitz (1940; Malaya) and *nipponensis* Beyer (1959; Japan). The new species *variegata* seems to be related to *genitalis*.

The new species of *Haplophleba* is particularly interesting, because it is the second species coming to light and because it occurs in New Guinea, whereas the genotype (*nigricans* Schmitz) was described from Patagonia.

Spiniphora variegata Borgmeier, new species

(Figs. 1–3)

Female.—Length approximately 3 mm. *Front* (fig. 2) pentagonal, dull, reddish yellow, in some specimens brownish in the middle, without median furrow. Frontal bristles strong, postantennals shorter (one-half of antials) and close together; first and second rows strongly convex anteriorly, the antials (*an*) divergent, the anterolaterals (la_1) at the same level with the preocellars (*po*). Third antennal joint small, reddish yellow, pointed apically, apex whitish. Arista apical, long (0.90 mm.), distinctly pubescent. Cheeks with a series of eight fine bristles. Undermost postocular bristle strong. Palpi yellow or reddish, with five bristles. *Thorax* dull, yellowish brown, dorsum sometimes in the middle with two black longitudinal striae and laterally with several black spots. Four dorsocentrals. Scutellum with four bristles of equal length. Mesopleura bare. *Abdomen* with six tergites, 1–4 dark brown with yellow hind margins, in some specimens yellow at the sides; 5–6 elongated, reddish yellow. Seventh tergite deeply incised medially. *Legs* ferruginous yellow, hind coxae clear yellow. Anterior tibiae with a dorsal bristle at middle; median tibiae with a pair of bristles at basal fourth, and one anterior bristle at distal third; posterior tibiae (fig. 3) with four bristles: one dorsal at distal third, two anterodorsals (the upper one at basal third, the other subapical), and one anteroventral at the middle; ventral terminal spur strong. Posterodorsal cilia rather long on basal half. Tarsal claws enlarged, especially on front legs. Empodium ribbon-like. *Wings* (fig. 1) distinctly yellow, the veins yellowish brown. Length 2.9 mm. Costa not swollen. Costal index 0.57, first section one-half longer than second and third together (21:11:3); costal cilia very short and delicate,

[1] Editor of "Studia Entomologica," Estrada Rio Grande 2116, Rio de Janeiro (Jacarepagua), Brazil.

approximately 45 pairs. Third vein with a single bristle at base. Fourth vein straight except at base; fifth nearly parallel with the fourth beyond middle, basally recurved; sixth slightly S-shaped; sixth and seventh not reaching the margin. Alular border with one hair. Halteres yellow.

Holotype female and 32 paratypes, PROBABLY FROM BORNEO, LABELED "MJÖBERG COLLECTOR. W. W. FUNGE BEQUEST." Types in the collection of the California Academy of Sciences, San Francisco. Some paratypes are on deposit in the author's collection.

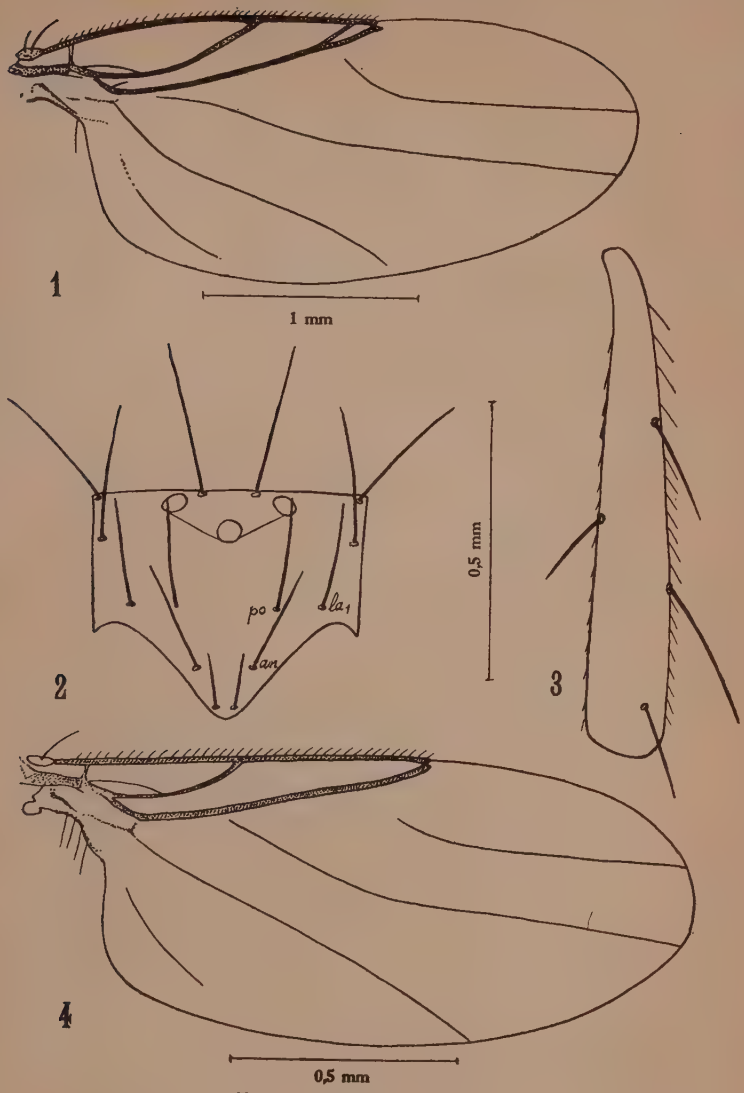
The nearest ally of this species seems to be *genitalis* Schmitz (1940) from the Malay peninsula, only known by the male. In *genitalis* the front is black or brown, the heavy veins are deep black and the light ones dark, the sixth vein is apparently more curved at distal half, and the fourth begins nearer to the furcation of the third.

Haplophleba distans Borgmeier, new species

(Fig. 4)

Female.—Length 1.6 mm. *Front* broader than long (width 0.26 mm.), black, slightly shining, with a fine median line and four postantennal bristles of nearly equal length. Pubescence rather long, a few anterior hairs directed downwards. First transverse row of bristles a little convex anteriorly, the antials a little nearer to the upper postantennals than to the anterolaterals which are inserted near the eye-margin. Second row straight, the preocellars a little farther apart from each other than the antials. Uppermost postocular bristle distinct, undermost not differentiated. Jowls with a rather strong bristle directed forwards. Cheeks with a series of hairs. Antennal grooves rather shallow. Third antennal joint black, not enlarged, globular. Arista dorsal, distinctly pubescent. Mouth-parts entirely (holotype) or partially (paratype) retracted into the head-cone. Palpi black, spindle-shaped, with short hairs. *Thorax* slightly shining, blackish brown, with two dorsocentral bristles; posterior hairs longer. Mesopleura bare. Scutellum with four nearly equal bristles. *Abdomen* dark brown, slightly shining, second and fifth tergite a little elongated, pubescence rather scarce. Sixth tergite almost hidden by the fifth, in the middle with a small shining chitinous plate. Cerci rather long. *Legs* brownish, the anterior one more yellowish. Hind tibiae 0.54 mm. long, without dorsal seam of palisade-like hairs. Anterior metatarsus a little longer than the two following joints together. *Wings* (fig. 4) colorless, heavy veins brown, the lighter veins very faint. Length 1.47 mm. Costal index 0.58, relation of length of the two costal sections 17:20. Costal cilia approximately 37 pairs, short and delicate. Third vein not forked. Fourth vein a little curved basally, fifth curved before middle, sixth almost straight. Alular border with four hairs. Halteres black.

Holotype female and one paratype, labeled "BIAK ISL., NETH. NEW GUINEA, 25.IV.45, G. E. BOHART." Holotype in the collection



EXPLANATION OF FIGURES

Figures 1–3, *Spiniphora variegata* Borgmeier—fig. 1, wing; fig. 2, front; fig. 3, hind tibia. Figure 4, wing of *Haplophleba distans* Borgmeier.

of the California Academy of Sciences; paratype in the author's collection.

Although I could not examine the gland-opening of the sixth tergite, I think there is little doubt that this species really belongs to the genus *Haplophleba* Schmitz, hitherto known from a single species *(nigricans)* living in Patagonia. The two species differ considerably in wing-venation (see Fig. 9C, Schmitz, 1929), but are in other respects very similar.

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ZOOLOGICAL NOMENCLATURE: Notice of Proposed Use of Plenary Powers in Certain Cases (A. [N.S.] 49)

In accordance with a decision of the 13th International Congress of Zoology, 1848, public notice is hereby given of the possible use by the International Commission on Zoological Nomenclature of its plenary powers in connection with the following cases, full details of which will be found in *Bulletin of Zoological Nomenclature,* Vol. 18, Part 4 to be published on 11th August, 1961.

(3) Designation of a type-species for *Lygus* Hahn, 1833 (Insecta, Hemiptera). Z.N. (S.) 1062;

(5) Designation of a type-species for *Myodocha* Latreille, 1807 (Insecta, Hemiptera). Z.N. (S.) 1431.

Any zoologist who wishes to comment on any of the above cases should do so in writing, and in duplicate, as soon as possible, and in any case before 11th February, 1962. Each

comment should bear the reference number of the case in question. Comment received early enough will be published in the *Bulletin of Zoological Nomenclature*. Those received too late for publication will, if received before 11th February, 1962, be brought to the attention of the Commission at the time of commencement of voting.

All communications on the above subject should be addressed as follows: The Secretary, International Commission on Zoological Nomenclature, c/o Brish Museum (Natural History), Cromwell Road, *LONDON, S.W. 7*, England.—W. E. China, *Assistant Secretary to the International Commission on Zoological Nomenclature.*

ZOOLOGICAL NOMENCLATURE: Notice of Proposed Use of Plenary Powers in Certain Cases (A. [n.s.] 48)

In accordance with a decision of the 13th International Congress of Zoology, 1948, public notice is hereby given of the possible use by the International Commission on Zoological Nomenclature of its plenary powers in connection with the following cases full details of which will be found in *Bulletin of Zoological Nomenclature*, Vol. 18, Part 3 to be published on 16 June 1961.

(1) Validation of the generic name *Cicadella* Latreille, 1817 (Insecta, Hemiptera). Z.N.(S.) 457.

(2) Designation of a type-species for *Conomelus* Fieber, 1866 (Insecta, Hemiptera). Z.N.(S.) 468.

(5) Designation of a type-species for *Aphis* Linnaeus, 1758 (Insecta, Hemiptera). Z.N.(S.) 881.

(8) Designation of a type-species for *Dasiops* Rondani, 1856 (Insecta, Diptera). Z.N.(S.) 1240.

(9) Designation of a type-species for *Harrisoniella* Bedford, 1928 (Insecta, Mallophaga). Z.N.(S.) 1282.

(10) Designation of a type-species for *Lestis* Lepeletier & Serville, 1828 (Insecta, Hymenoptera). Z.N.(S.) 1383.

Any zoologist who wishes to comment on any of the above cases should do so in writing, and in duplicate, as soon as possible, and in any case before 16 December 1961. Each comment should bear the reference number of the case in question. Comment received early enough will be published in the *Bulletin of Zoological Nomenclature*. Those received too late for publication will, if

received before 16 December 1961, be brought to the attention of the Commission at the time of commencement of voting.

All communications on the above subject should be addressed as follows: The Secretary, International Commission on Zoological Nomenclature, c/o British Museum (Natural History), Cromwell Road, London, S. W. 7, England—W. E. China, *Assistant Secretary, International Commission on Zoological Nomenclature.*

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